The forces of defense are fully described, with an ample exposition of the defects of present game laws and of the protective restrictions that are needed. The book is written with a keenly stimulating vigor and is well fitted to arouse indignation, cultivate conviction and stir to endeavor. It is at once a cyclopedia of fact and a summons to action. A. P. BRIGHAM.

The National Geographic Society Researches in Alaska. By Lawrence Martin. *National Geographic Magazine*, Vol. 22, 1911, No. 6, pp. 537–561. Maps, ills.

This paper records the results of four months' study of Alaskan glaciers by Professor Martin in 1910, continuing studies by Tarr and Martin in 1909. The field of observation was Prince William Sound and Yakutat Bay. The opportunity was of special importance owing to the fresh action of some glaciers due to avalanche snows contributed to the glaciers through a series of earthquake shocks in 1899. In the case of several Yakutat Bay glaciers the advance is known to have begun several years after the agitation. It also appears that the longer glaciers required more time to exhibit the forward movement.

Much study was given to the Childs Glacier, which flows through a lateral valley to the banks of the Copper River. This glacier began its unusual advance in the winter of 1909–1910, and in the summer following the front margin was advancing from two to eight feet each day. Undercutting by the river and "sloughing" caused strong erosion of the opposite bank. By Oct. 5 the total advance of front was about a third of a mile. Along parts of the margin impressive results were seen from day to day, in plowing up the earth and the overturning of trees which the day before were standing at the edge of the glacier. The movement threatened the safety of the great railroad bridge, costing $1,400,000. The glaciers of the Copper River and Prince William Sound are not in the zone of avalanching to which Yakutat Bay belongs and the cause of advance is left in doubt. Several glaciers were found to be receding. A. P. BRIGHAM.

SOUTH AMERICA

Vitcos, the Last Inca Capital. By Hiram Bingham. 64 pp. Ills. Reprint, *Proc. Amer. Antiquar. Soc.*, April, 1912. Worcester, Mass. 9½ x 6.

There is much to be said in favor of the piecemeal presentation of the results of Professor Bingham's explorations into the ancient civil geography of Peru. He sacrifices the bulk of the ponderable masterpiece which might impress the casual reader, but to those who watch his sane and cautious, yet always brilliant, progress through the tangle of the disputes which have clouded Inca chronology and the Peruvian geography in which it found its development, each of these brochures stands as a masterpiece of research in the field and of interpretation upon the terrain of the problems of orientation which in the study have evaded all attempts at solution. The expedition recorded in this monograph was addressed to the settlement of the site of the last Inca capital, that mountain fastness in which the young Manco Inca found a refuge from Pizarro. In this work Professor Bingham presents cogent reasons for identifying the Inca's Vitcos with the site now known as Rosaspata and for establishing his temple of the sun, Yurak Rumi, upon the ruins which he traced at Ñusta España. The author is the third in brilliant succession to set the name of Hiram Bingham in the roll of those who have given us knowledge of obscure folk; to his father we owe our best information upon Ni Makin and Ni Peru of the Gilbert Archipelago, and to his grandfather is due the history of the introduction of civilization to the Hawaiian Islands.

WILLIAM CHURCHILL.

AFRICA

The African Rubber Industry and Funtumia elastica ("Kickxia"). By Cuthbert Christy. xvi and 252 pp. Map, ills., index. John Bale, Sons & Dainelsson, Ltd., London, 1911. 12s 6d. 9 x 6.

A monograph on the African rubber tree, *Funtumia elastica*, and also a practical treatise. In the preface the author says he is fully conscious of his literary failings; but the reader will say the book is well written. The style is fluent and the descriptions are precise and clear. The book might have been improved,

however, by a more systematic arrangement of topics, by condensation in places and by occasional comparisons with other rubber plants and conditions in other countries.

The rubber species *Funtumia elastica* is confined to central and western Equatorial Africa, between 10° N. and 10° S., that is to say, to the Southern Sudan, the Belgian Congo and French Equatorial Africa, Guinea, the northern part of Angola and the western portion of Uganda. This is the tropical forest region of heavy rainfall, exceeding 50 inches a year.

Christy spent five years in East Africa and Uganda, traveled also in most of the West African Colonies and gained his knowledge of the rubber industry from personal experience and from his intercourse with those who are practically interested in the plant. He also utilized scientific literature dealing with the chemistry of rubber, and the climate and soils adapted to its cultivation.

HENRYK ARCTOWSKI.

ASIA

The Duab of Turkestan. A Physiographic Sketch and Account of Some Travels. By W. Rickmer Rickmers. xv and 564 pp. Maps, ills., index. University Press, Cambridge. University of Chicago Press, Chicago, Ill., 1913. $9.44, postpaid. 10½ x 8.

The "Duab," or "Two Rivers," is a name applied by Mr. Rickmers to the part of Russian Turkestan between the Amur and Syr Rivers, the ancient Oxus and Jaxartes. This includes the khanates of Bokhara and Khiva. The portion dealt with most thoroughly is the Zarafshan valley and the mountains at its head. The purpose is to give a complete treatment of the geographical features of a single definite region possessing considerable unity. Topography, climate, flora, fauna and human population are all discussed and are frequently compared with those of other regions. A fair number of statistics are given and in addition there are many descriptions of scenery, of the habits of the people, and of ordinary incidents of travel. Taken as a whole the book gives a clear picture of the Duab as it exists to-day under Russian rule.

The volume is an interesting example of the present stage of geographical development. The author is not a geographer by profession; he is an excellent traveler with a keen interest in the things which he sees and with a strong desire to explain them. Having become especially interested in the region of the Duab, which he has visited many times, he has read widely to train himself in geographical principles. The result is a book which stands midway between the mere accounts of travel which were called geography in the past, and the thorough treatment of geographical regions by specialists which will form the geography of the future. Feeling that geography is a new science and being conscious of the large number of problems which his reading has opened to him, the author devotes a large portion of his space to what may be called geographical and especially physiographic philosophizing. In other words, he attempts to explain and elucidate a large number of matters which are familiar to the trained geographer but not to the average reader. In all doubtful questions he is extremely careful to introduce as many modifying considerations as possible and goes so far in this that in some cases one cannot form one's own opinion and is in doubt as to what may be that of the author. He succeeds admirably, however, in impressing upon the reader the fact that in spite of recent advances in the physiographic side of geography only a beginning has been made and there is still an enormous field for research.

The chief problems discussed by Mr. Rickmers are all more or less directly climatic. They are touched upon somewhat in the main body of the work, but their chief treatment is in an appendix of fifty pages or more, where conclusions are summed up. The most important subjects are present climate, the relation of forests to climate, the snow line, glaciation, desiccation, sand and loess. In the body of the volume the author emphasizes the rapidity and wholesale character of erosion among dry mountains where sudden floods, avalanches, and the like cause detritus to come down from the mountains in large quantities during short periods. He dwells especially on mud avalanches or "mud spates," a term which he advocates for general use.

The most important portion of the book is the discussion of the connected